What is claimed is:

1. A method for performing optical adjustments on an exposure apparatus provided with: a light source for generating illumination light for exposure, and illumination optics for irradiating a mask with said illumination light and exposing a mask pattern on a substrate base using said illumination light, comprising:

activating a wide bandwidth light source serving as said light source for generating exposure light and non-exposure light having wavelengths different from wavelengths in said exposure light; and

performing optical adjustments on optical components in at least a part of said illumination optics using said non-exposure light.

2. A method for performing optical adjustments on an exposure apparatus provided with: a light source for generating illumination light for exposure, and illumination optics for irradiating a mask with said illumination light, and exposing a mask pattern on a substrate base using said illumination light, comprising:

activating a wide bandwidth light source serving as said light source for generating exposure light and non-exposure light having wavelengths different from wavelengths in said exposure light;

performing primary optical adjustments for optical components in at least a part of said illumination optics using said non-exposure light; and

performing final optical adjustments for said illumination optics using said exposure light emitted from said wide bandwidth light source.

3. A method according to one of claims 1 or 2, wherein said exposure apparatus is provided with projection optics consisted of reflective components for focusing illumination light exiting from a mask so as to project a pattern fabricated on said mask on a substrate base, wherein adjustments of optical components in at least a part of said illumination optics and said projection optics are performed using said non-exposure light emitted from said wide bandwidth light source.

4. A method according to one of claims 1 or 2, wherein said wide bandwidth light source generates light having wavelengths in an extreme ultraviolet range as said exposure light, and at least one of ultraviolet light or visible light as non-exposure light, wherein said illumination optics consists of reflective optical components.

5. A method for performing optical adjustments for an exposure apparatus provided with: a light source for generating illumination light for exposure; illumination optics for irradiating a mask with said illumination light; and projection optics for projecting a pattern image of said mask on a substrate base; comprising:

activating a wide bandwidth light source serving as said light source for generating exposure light and non-exposure light having wavelengths different from wavelengths in said exposure light; and

performing optical adjustments on optical components in at least a part of said projection optics using said non-exposure light.

6. A method according to claim 5, wherein, after adjusting said optical components using said non-exposure light, repeating optical adjustments on said projection optics using said exposure light emitted from said wide bandwidth light source.

7. A method according to claim 5, wherein said wide bandwidth light source generates light having wavelengths in an extreme ultraviolet range as exposure light, and at least one of ultraviolet light or visible light as non-exposure light, wherein said projection optics consists of reflective optical components.

8. A method according to claim 4, wherein said wide bandwidth light source is a laser excitation plasma source, and said exposure light comprises extreme ultraviolet light having a wavelength in a range of 5 to 20 nanometers.

9. A method according to claim 7, wherein said wide bandwidth light source is a laser excitation plasma source, and said exposure light comprises extreme ultraviolet light having a wavelength in a range of 5 to 20 nanometers.

10. A method according to claim 4, wherein, when performing optical adjustments using said non-exposure light, a gaseous substance is supplied to an optical path of said non-exposure light, and when performing exposure or optical adjustments using said exposure light, an optical path of said exposure light is enclosed in an essentially evacuated state.

11. A method according to claim 7, wherein, when performing optical adjustments using non-exposure light, a gaseous substance is supplied to an optical path of said non-exposure light, and when performing exposure or optical adjustments using said exposure light, an optical path of said exposure light is enclosed in an essentially evacuated state.

12. An exposure apparatus for exposing a mask pattern onto a substrate base comprised by: a light source for generating illumination light for exposure; and illumination optics for irradiating said illumination light emitted from said light source on a mask, wherein said light source is a wide bandwidth light source for generating exposure light and non-exposure light having wavelengths different from wavelengths in said exposure light; and said exposure apparatus is provided with a photo-sensor for detecting said non-exposure light that has passed through at least a part of optical components in said illumination optics.

13. An exposure apparatus according to claim 12, wherein said apparatus is provided with projection optics for projecting said mask pattern by focusing illumination light exiting from said mask onto said substrate base, and said photo-sensor detects non-exposure light that has passed through said illumination optics and at least some of optical components in said projection optics.

14. An exposure apparatus for exposing a mask pattern onto a substrate base comprised by: a light source for generating illumination light for exposure; and illumination optics for irradiating said illumination light on a mask, wherein said light source is a wide bandwidth light source for generating exposure light and non-exposure light having wavelengths different from wavelengths in said exposure light; and said apparatus is provided with a photo-sensor for detecting said non-exposure light that has passed through at least a part of said projection optics.

15. An apparatus according to one of claims 13 or 14, wherein said illumination optics and said projection optics are consisted of reflective optical components, and said apparatus is provided with stage system for moving a mask and a substrate base in a given direction; and a control device for scanning said mask and said substrate base concurrently with respect to projection optics, so as to imprint a mask pattern on said substrate base.

16. An apparatus according to one of claims 12 or 14, wherein said wide bandwidth light source generates extreme ultraviolet light as said exposure light and generates at least one of ultraviolet light or visible light as said non-exposure light; and

when using said non-exposure light generated from said wide bandwidth light source, a gaseous substance is supplied to an optical path of said non-exposure light, and when using said exposure light generated from said wide bandwidth light source, an optical path of said exposure light is enclosed in an essentially evacuated state.

17. An apparatus according to one of claims 12 or 14, wherein a wavelength selection device is provided for transmitting one of said exposure light and said non-exposure light, emitted from said wide bandwidth light source, towards illumination optics.

18. An exposure apparatus having an x-ray source for generating x-rays by generating a plasma from a substance so as to use x-rays generated from said x-ray source as exposure light, wherein a light source position observation system is provided to form an image of said x-ray source using light which has a wavelength different from that of said x-rays and is generated concurrently with said x-rays from said x-ray source.

19. An apparatus according to claim 18, wherein said x-ray source is a laser excitation plasma x-ray source for producing plasma generated x-rays by irradiating a substance with a laser to generate a plasma of said substance.

20. An apparatus according to claim 18, wherein said light source position observation device includes a first light source position observation system and a second light source position observation system, which are positioned so as to observe said x-ray source from different directions.

21. An apparatus according to claim 18, wherein said light source position observation device includes a first light source position observation system and a second light source position observation system, optical axes of said first light source position observation system and said second light source position observation system are at least partially parallel with an optical axis of said x-rays, and are disposed so as to be at ninety degrees to an optical axis of x-rays.

22. An apparatus according to claim 18, wherein said x-ray source is disposed inside a vacuum chamber, and said light source position observation system provides for observation of an image of said x-ray source formed by said light from outside said vacuum chamber.

23. A method for positioning an x-ray source for emitting exposure light, comprising: generating x-rays from an x-ray source that produces x-rays by generating a plasma of a substance; and positioning said x-ray source using light which has a wavelength different from that of said x-rays and is generated concurrently with said x-rays from said x-ray source.

24. A method for exposure comprising: generating x-rays from an x-ray source that produces x-rays by generating a plasma of a substance; positioning said x-ray source using light which has a wavelength different from that of said x-rays and is generated concurrently with said x-rays from said x-ray source; and then performing an exposing process.

25. A method for manufacturing an exposure apparatus which comprises a light source for generating first illumination light as exposure light and second illumination light having a wavelength different from that of said first illumination light, comprising:

arranging an optical system in an optical path of said first and second illumination light;

adjusting said optical system by detecting said second illumination light passing through said optical path; and

adjusting said optical system by detecting said first illumination light passing through said optical path.

26. A method according to claim 25, wherein said optical system is a reflective optical system comprising a plurality of reflective optical elements assembled into a barrel.

27. A method according to claim 26, wherein said exposure apparatus comprises a stage system for relatively transferring a first object and a second object in order to expose said second object with said first illumination light via said first object.

28. A method according to claim 27, wherein said first illumination light has a wavelength in a range of 5~50 nanometers.